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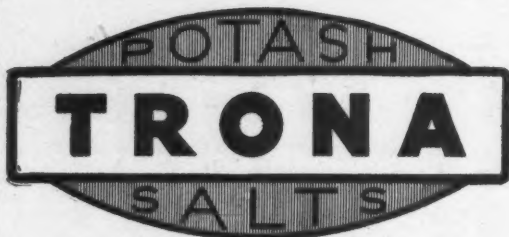
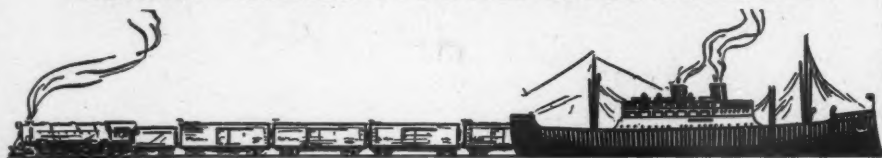
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See page 27







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... THE ...

# AMERICAN FERTILIZER

"That man is a benefactor to his race who makes two blades of grain to grow where but one grew before."

Vol. 101

DECEMBER 16, 1944

No. 12

## Fertilizing for Yield and Soil Improvement\*

By R. E. STEPHENSON

*Soils Department, Oregon State College, Corvallis, Oregon*

THE amount as well as the kind of fertilizer to use on any particular crop is critically important for producing good yields, without which the principal incentive for the use of fertilizers would be lost. One hundred bushels of corn in the entire plant contains the equivalent nitrogen, phosphorus, and potassium supplied by more than 1,500 pounds of commercial fertilizer made up from nitrate of soda, superphosphate, and muriate of potash. Land must be naturally fertile or it must be enriched by liberal fertilization, and other factors such as moisture must be right, to produce 100 bushels of corn. Use of a small amount of fertilizer under the most favorable conditions probably will not result in a 100-bushel yield on land that has a 50-bushel natural capacity. To produce the extra 50 bushels and bring the yield to 100 bushels, if such a yield is possible, the corn must be enabled in some way to obtain nutrients equivalent to more than 750 pounds of fertilizer.

Effective fertilization of corn on Vigo silt loam is indicated by results from the Indiana Experiment Station, although 100-bushel production was not attained. With 150 pounds of 2-12-6 in the row the yield was 18 bushels, showing no increase over the unfertilized corn. With an additional 500 pounds of 10-10-10 used in plow-sole application, the yield was 37 bushels an acre. Use of 1,000 pounds of 10-10-10 brought the yield to 54 bushels, and 1,500 pounds yielded nearly 70 bushels an acre. Thus, while a light application in the row had no effect, an adequate amount properly placed produced good increases of four to six bushels of corn for each 100 pounds of fertilizer.

The common rates of farm application of fertilizer, therefore, are often much too small to produce the big yields that the best soils, well fertilized and managed, are capable of producing. Corn is about average in its nutrient requirements, and other crops to produce big yields would have similar heavy demands for nutrients. Nitrogen, phosphorus, and potassium are only three of the eleven elements that crops take from the soil. Any one of the eleven essential nutrient elements coming from the soil may need supplementing before big yields can be obtained. Successful use of fertilizers depends in part upon correctly tracking down the one or more deficiencies that is limiting production.

### Fertilizer Residue

Seldom, if ever, is all the nutrient supplied in fertilizer used by the immediate crop. A residue remains in the soil which will presumably have an effect upon future crops. Two-thirds or more of the phosphorus supplied in fertilizer may be fixed by the soil. If only the phosphorus needs of a 100-bushel corn crop were supplied entirely from fertilizer, 300 pounds of superphosphate per acre might suffice. Probably twice this much more must be used to satisfy soil fixation. Not fixation, however, but economic returns govern the amount of fertilizer that can be used on any crop.

There is no means of avoiding some fixation. The Massachusetts Station obtained 285 bushels of potatoes with a ton of 5-0-7 fertilizer, 393 bushels with a ton of 5-8-7, and 432 bushels with a ton of 5-16-7. These data indicate not only a need for phosphorus in the fertilizer program, but that a large excess over

\*Reprinted from "Better Crops with Plant Food."

the needs of the crop must be supplied for good production. A ton of 5-8-7 probably contained more than three times as much phosphorus as the crop used (assuming that none was contributed by the soil), and yet there was a yield increase of 39 bushels an acre when the phosphorus was doubled by using a ton of 5-16-7 fertilizer.

Making up deficiencies only seldom gives yield increases that are equivalent to the nutrient supplied in the fertilizer. At Massachusetts one ton of 5-8-0 produced 231 bushels of potatoes an acre. Probably a little more than half a pound of potash goes into the plant's nutrition for each bushel of potatoes produced. On this trial, a ton of 5-8-3 supplying 60 pounds of potash added 125 bushels to the yield, or a little more than a bushel for a half pound of potash. Larger additions of potash, however, had a lesser effect. One ton of 5-8-7 supplying 80 pounds more potash added only 37 bushels to the yield. A ton of 5-8-10 furnishing 60 pounds more potash than the previous treatment added only 25 bushels to the previous yield. Thus the yield increase dropped from two bushels to less than half a bushel of potatoes for each pound of potash as the fertilizer rate was increased, an example of the functioning of the law of diminishing returns. Presumably only a part of the potash added was utilized by the crop; a part of the excess no doubt remained in the soil to contribute to its improvement.

In contrast to phosphorus and potassium which are fixed by the soil, nitrogen cannot be long held except in combination with humus or plant materials. Most of the nitrogen applied as fertilizer is either used by the crop or soon leached and lost. Nitrogen can, however, be used in a soil-building program to grow humus materials, cover crops, and vigorous root systems which renew the soil humus.

To use nitrogen alone to grow crops that are harvested and sold may deplete the soil. Nitrogen is the growth element. The 100-bushel corn crop used nitrogen equivalent to that in 1,100 pounds of nitrate of soda. Liberal nitrogen fertilization enables the crop to remove the maximum of minerals, phosphorus and potassium, and other essential nutrients from the soil, and fertility exhaustion may be hastened as a result.

Good soils are relatively rich in available minerals. Soils of the desert, when watered, are sometimes phenomenally productive. Desert soils are unleached and are therefore rich in readily soluble minerals. Phosphatic lime-

stone soils are usually fertile. These soils are especially rich in calcium and phosphorus, two elements that are commonly somewhat deficient in the soil and more so in the strongly leached acid soils. To bring about soil improvement, not only the nitrogen and humus must be renewed, but the mineral supply must be increased. Since it is probably impossible to correct a nutrient deficiency without at the same time leaving a residue of nutrients in the soil, fertilizing for big yields and fertilizing for soil improvement are two parts of one operation.

#### High-acre Returns

Fertilizing for both big yields and for soil improvement is most economically done on crops producing high-acre returns. In contrast to corn and wheat, which seldom gross more than \$50 per acre, some crops may return several hundred dollars per acre. Thus hops in western Oregon, yielding a ton at 75 cents, return \$1,500 per acre. A ton of fertilizer per acre on hops would be a smaller relative expense than perhaps 100 pounds of fertilizer on corn or wheat. However, the demand for nutrient may be just as great for the crop yielding a smaller return.

In western Oregon the most common nutrient deficiency is nitrogen. The soils are heavily leached by winter rains which remove the soluble nitrate and other nutrients. As warm summer weather with little or no rainfall comes, the surface soil dries and nitrification in the topsoil which contains most of the humus is stopped. Likewise the functioning of roots in the dry topsoil is stopped either by the dry condition of the soil or by deep cultivation, which destroys the roots. The crop is thereby left with only a limited supply of available nitrogen throughout most of the good growing weather.

In practice this difficulty may be partially overcome by early fertilization (February or March when possible) with nitrogen fertilizer. Next to nitrogen in importance as a deficiency are possibly phosphorus or sulphur, and frequently boron. Practically all soils and most crops respond to a nitrogen fertilizer. The response to the other nutrient elements may not be noticeable until the nitrogen deficiency has been corrected.

Garden and small fruit crops usually receive a complete fertilizer, which should supply sulphur in addition to the N-P-K as assurance against a possible shortage of sulphur. Boron in the form of borax at 30 pounds more or less an acre, according to the crop, is necessary for the production of some vegetables and other

(Continued on page 30)



## Secretary Brand Makes Statement on Hill Bill

Executive Secretary Charles J. Brand, of The National Fertilizer Association, has declared in a statement on the Hill bill pending in Congress proposing that the Tennessee Valley Authority be empowered to establish a national fertilizer policy and program, that the national fertilizer policy and program should be left to the most experienced agencies in the field. These he enumerated as the United States Department of Agriculture, the agricultural colleges and experiment stations of the States, the State Departments of Agriculture, and the fertilizer industry acting through its national association.

Continuing, Mr. Brand says: "The Tennessee Valley Authority can also make its contribution, but it is only ten years old; its research work emanated originally from the Bureau of Soils and the Fixed Nitrogen Research Laboratory of the United States Department of Agriculture; and its agricultural experience has been confined in general to the use of phosphate fertilizers and of liming materials in a restricted area. Another point that is worthy of careful consideration is the duplication of agencies undertaking work in relatively identical fields. This is bad administration and wasteful of the taxpayers' money. The agencies mentioned above have had a much longer experience than the TVA, some of it going back more than a century. They have a much wider viewpoint, embracing all forty-eight States and all territories. The personnel, particularly of the United States Department of Agriculture, have been lifelong students in their particular fields.

"There is no present reason to believe that the projected Mobile plant will produce either a better or a cheaper fertilizer than the industry is now producing. On the contrary, TVA costs, both as to phosphates and as to nitrogen products, are higher than the industry's quotations.

"A national fertilizer policy has been developing for decades; first, through actual experience by trial and error since Washington and Jefferson did their pioneer work in the fertilizer field; later through the work of the existing and functioning responsible agencies of the Department of Agriculture. Only when World War I diverted nitrogen supplies to munitions manufacture and cut off importations of potash, which at that time came entirely from Germany, have American farmers experienced any serious shortage. Our

phosphate production has always been adequate in the circumstances; our nitrogen production now can readily exceed any likely demand; and the private American potash industry will this year produce approximately 800,000 tons of potash salts, where we used prior to World War I about 240,000 tons."

## Flour from Cotton Seed

Cottonseed flour for human consumption has enhanced the value of the cotton crop already valuable for its fiber and feed. With its increased food value for human beings, it follows that there will be less cottonseed meal for feeding the crops as a fertilizer.

Recently the press carried an item from Washington which began as follows: "A protein-rich flour made from cotton seed gave promise of overcoming dietary deficiencies in millions of persons."

The flour, having 50 per cent protein, was described by D. Breese Jones, of the United States Department of Agriculture's Bureau of Human Nutrition and Home Economics, as "partially defatted, wholesome and palatable."

Already large quantities of cottonseed flour, according to Mr. Jones, have been shipped abroad for lend-lease "as an economical and practicable way of helping to meet a shortage of protein food for relief in foreign lands."

Concerning future civilian use in this country, Mr. Jones is quoted as saying: "Because of its value as a protein supplement, a more extended domestic use of cottonseed flour would raise the nutritional level of the diet of peoples living in areas where corn constitutes a major source of protein in the diet.

"A mixture containing 16 per cent more protein than wheat flour can be produced," according to Mr. Jones, "by adding as little as five parts of cottonseed flour to 95 parts of wheat flour."

Failure of the South to recognize the value of cottonseed flour is due to a widespread belief that the meal contains toxic elements, but apparently research workers found this to be untrue or else have discovered ways of removing the toxicity. Cottonseed meal has long been used as a feed for livestock with limitations based on a belief that too much would prove harmful.

## Government Appointments

*Arthur W. Turner* has been appointed assistant chief of the Bureau of Plant Industry, Soils and Agricultural Engineering of the United States Department of Agriculture. Dr. Turner was formerly associate professor of agricultural engineering at Iowa State College and for several years was connected with a large industrial concern as educational director. His new work is to be directed especially toward the development of agricultural engineering of the bureau.

*Dr. A. C. McCall* in the Research Division of the Soil Conservation Service, retired on November 30th, but will be retained in an advisory capacity, it is announced. Dr. McCall enjoys an international reputation as a soil scientist. Besides his long service with the United States Department of Agriculture he has held positions of importance with Ohio State University and the University of Maryland. He is a member of the International Society of Soil Science, former president of the American Society of Agronomy. He is the author of numerous publications of agriculture; among his most recent are ten handbooks for soil conservation technicians.

## Sulphuric Acid Allocation Authorized

Effective December 1st, the War Production Board authorized the allocation of sulphuric acid and restricted producers to ship 75 per cent of October deliveries to the fertilizer industry. In announcing the allocation, WPB stated that it might well be possible to increase the allocation of sulphuric acid by the end of December. In fact, it is proposed that readjustments are to be made on a monthly basis and that users in some areas may receive a greater supply than others depending upon the available supplies in those areas and the tank car situation.

No restrictions are placed on residual or spent acid except for use in making superphosphate, in which case, specific authority must be obtained from WPB on WPB Form 2947. Applications must be filed before the 15th of the month before delivery for the following month, except for the month of December, when applications as soon as possible were requested.

The order provides a small-order exemption in the amount of 500 tons, 100 per cent monthly basis.

The only uses of sulphuric acid for which there are no restrictions during December are: For the production of tetraethyl lead, bi-chromates, industrial explosives, military explosives, hydrochloric acid, silica gel or rubber.

Previous to December 1st, allocation of sulphuric acid had been in effect in eleven western states. The extension of allocation to the remainder of the nation, while considered among the possibilities, came sooner than many anticipated. At a recent meeting of the Fertilizer Advisory Committee in Washington, the sub-committee on superphosphate urged that if sulphuric acid were allocated, every consideration be given to its essential use in making fertilizers and that it be made available in time to meet the spring demand for fertilizers. It was anticipated at the committee meeting that superphosphate production in 1944-45 season would be less than for the 1943-44 season, even before the allocation of sulphuric acid was authorized. Just how much the allocation will cut the total production is considered uncertain in view of proposed modifications of allocations on a monthly basis, contingent upon available supplies and tank-car facilities for shipping to production centers.

## Barrett's Anhydrous Ammonia Booklet

The Barrett Division of the Allied Chemical and Dye Corporation has issued an informative and interesting booklet describing the chemical and physical properties of anhydrous ammonia and some of its varied uses. War is absorbing the material for the time being but a widely expanded use is contemplated for the post-war period.

## Spuds for China

Some of the best potatoes for America are apparently some of the best for China, too, according to tests by a U. S. Department of Agriculture scientist sent there to assist in cultural relations efforts. The Agricultural Research Administration tried out 52 American commercial white potato varieties in several parts of China and found four of them outstanding in yield and disease resistance. The four potato "tops" are Warba, Sebago, Houma, and Chippewa—all with North American Indian names that must have a strange sound in the Chinese countryside.

## Secretary Wickard Criticizes Hill Fertilizer Bill

The Hill bill (S. 2035), proposing that the Tennessee Valley Authority formulate a national fertilizer policy and program that would more or less put the agency in direct competition with private industry, has been rejected by the administration.

In a letter to the senate committee on agriculture, it was revealed by Secretary of Agriculture Claude R. Wickard that the feelings of the White House in this matter are that, if such a policy is to be framed, it should be done by the Department of Agriculture and carried forward through a program much more limited in scope than that proposed in the legislation.

The Hill bill, introduced last June by Senator Lister Hill of Alabama and having as one of its principal objectives the construction of the fertilizer plant at Mobile which has been held up on WPB orders since the start of the war, has been the subject of much consideration in agricultural circles. It is viewed by the fertilizer industry as one of the most formidable threats to its continued functioning in a normal basis that has been directed at it in years.

Secretary Wickard's views as expressed in the letter and sent to the committee with the permission of the Bureau of the Budget—which comes under the wing of the White House and thus is regarded as reflecting the opinions of the President—can be summed up as follows:

1. That TVA has not had enough experience in the problems of fertilizer and the farmers to be in position to formulate a national policy or carry one out.

2. That Congress should not give the "go" signal for construction of the Mobile plant until after a national policy has been established, because it might be found that the plant would be in disagreement with the policy and program.

3. That Congress should give most serious consideration to the suggestion that the Government be given unlimited authority to buy or lease the Florida phosphate reserves because such action might upset the operation of private industry in that area.

4. That it is unnecessary to carry on a program of demonstrating the value of phos-

phates as a fertilizer in the Southeastern area of the country because the farmers in that area are entirely familiar with it. If such demonstrations are to be made it would be desirable that they be carried on in the Rocky Mountain area.

Secretary Wickard said, with respect to the provisions of the bill which would have the Government establish plants for the utilization of the Western phosphate and potash deposits, that he thought it would be desirable that one or two plants should be operated by the Government "on an experimental or demonstration basis" to study new and alternative methods of production. In part the secretary's letter was as follows:

The scope and character of the fertilizer industry affects the welfare of the entire nation. It is estimated that some 20 per cent of our total crop production in 1944 will result from use of fertilizer. The effective use of fertilizer is essential to the maintenance of soil productivity and economical crop production. Therefore, the formulation of a national fertilizer policy and program is a worthwhile objective.

The Tennessee Valley Authority has made substantial contribution in the fertilizer field, but its experience in technology and production has been limited primarily to phosphates. More recently it has gained some experience in the production of one kind of nitrogen fertilizer. In the use of fertilizer the authority's test demonstration has been almost wholly limited to the use of phosphates and limestone on pasture and hay crops in the Tennessee Valley area. It has not used mixed fertilizers, potash or, until recently, nitrogen. This rather limited experience in fertilizer use would not seem adequate for the the formulation of a national fertilizer policy and program that would influence the production and use of all kinds of fertilizer in all sections of the country and on all types of crops.

### Work of Department

The Department of Agriculture more than any other national agency has been and is functioning on a national basis in fertilizer matters. By virtue of its close contact with farmers and industry and its effective organization which reaches to all sections of the



country, the department is in a position to actively take the leadership in the formulation of policy and programs relating to fertilizer. Considerable progress has already been made by agencies of the department, along lines set forth in the bill. This progress includes investigations on fertilizer technology and fertilizer use by the Agricultural Research Administration; studies in fertilizer economics by the Bureau of Agricultural Economics; encouragement of the use of fertilizer for soil-building purposes by the Agricultural Adjustment Administration; and formulation of fertilizer requirements and direction of distribution during the war period by the Office of Materials and Facilities of War Food Administration.

Section 2 of the bill provides for the implementation of the program in the Mobile plant prior to the formulation and adoption of a national fertilizer policy and program. It would seem more logical to formulate the policy and program before setting up what might be a vital part of the machinery for carrying out the plan. Furthermore, the action proposed in the bill might not be in agreement with the program that would be formulated.

We believe the advisability of the Government's exercising unlimited authority to buy or lease phosphate reserves in Florida should be carefully examined. It is possible that such actions would deprive industries now established and operating in the area of required supplies of raw materials. The desirability of setting aside as much as 50 per cent of the production of the Mobile plant for demonstration purposes might also be questioned. The value of phosphate has already been widely demonstrated among farmers in the Southeast. It might be preferable, therefore, to start a program of this kind in the Rocky Mountain area where there are large phosphate reserves and government land and the use has not been amply demonstrated.

#### **Fertilizer Prices Reasonable**

Although fertilizer prices have increased some during the war period, they remain considerably lower relatively than most other commodities that farmers buy. Also the quality of fertilizer has improved materially during recent years. However, the preservation of our soil resources requires far greater quantities of fertilizer than have been purchased at any time in the past, even when income-price relationships were most favorable. Therefore, the operation of one or more government-controlled fertilizer plants on an

experimental or demonstration basis would afford a ready means of studying new and alternative methods of production. In the absence of such operations important advances might long be delayed or never realized.

This department favors the general objectives of the bill, since it contains some valuable points which are essential to the development of an adequate fertilizer program. We do not believe, however, that the methods proposed in the bill for arriving at this objective are wholly satisfactory for the overall agricultural interests of the country.

The Bureau of the Budget advises that it has no objection to the submission of this report as the enactment of the proposed legislation would not be in accord with the program of the President.

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### **Tobacco Quotas for 1945**

Individual farm acreage allotments of flue-cured and burley tobaccos are the same as in 1944, but an additional total acreage of 2 per cent has been allotted where the allotment has not been equitable and for persons who have not grown tobacco for the last five years and who want to resume growing it. No marketing quotas are in effect on other types of tobacco. The flue-cured and burley tobaccos are the kinds used mainly in the manufacture of cigarettes.

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### **Million Veterans Expected to Farm**

The United States Department of Agriculture estimates that more than one million service men will want to engage in farming after the war is over. The armed forces are discharging men at the rate of 25 to 30 men per county each month. The Department of Agriculture is asking that farm communities do everything in their power to help the returning soldiers to become happily adjusted in agriculture.

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### **Peanut Production**

A record crop of 2,336,865,000 pounds of peanuts is indicated for this year according to latest estimates of the U. S. Department of Agriculture. This will be about 137,000,000 pounds more than was produced last year.



# IT MAY BE

By SAMUEL L. VEITCH

## Agriculture Outlook

The outlook for some time ahead is for high farm prices, politically speaking. Men favoring high prices will dominate farm affairs in the next Congress which will call the shots on farm policy rather than the Administration. Senate and House Agriculture Committees will play a more prominent part than in the past years. Senator Elmer Thomas of Oklahoma, new Senate Chairman, intends to put some "Oomph" in this Committee. It may be a case of "Clear it with Elmer."

Here are a few names that will look after Agriculture matters. They are Thomas of Oklahoma, Bankhead of Alabama, Ellender of Louisiana, Flannagan of Virginia, Pace of Georgia, Cooley of North Carolina and Hope of Kansas.

## Superphosphate

It is estimated there will be about 500,000 tons less superphosphate in 1945 than in 1944. WFA is suggesting that farmers order now and take immediate delivery.

## Farm Machinery

Farm machinery production has not as yet swung into high gear, and there appears no assurance it will until after Germany is defeated. WPB is making another survey in an effort to determine what is wrong, and what can be done about it.

## Farm Journal

It may be the article in the October issue of the *Farm Journal* entitled "Communist Beachhead in Agriculture" has a certain union head a wee bit excited. The name is Archie Wright in case you are interested, who wants *Farm Journal* to pay \$100,000 damages to personal reputation plus the cost of mailing a copy of Court Proceedings to each of the *Journal's* large list of subscribers, at an estimated cost of \$6,500,000.

## Cigarette Shortage

It seems in 1939 civilians smoked 172 billion, and in 1943 this figure jumped to 257 billion. This year approximately 250 billion available with a far greater demand. Some say manufacturers can't keep pace due to the lack of cartons and shipping. It may be this line of thought is all wet. Could it be due to

controversies between manufacturers and Government? Manufacturers feel they should be allowed to "up" prices and Government say, "thumbs down" on price increases, but how about cutting down on advertising costs. Could be?

## Courts Can Review WPB Suspension Orders

Congressional action extending the powers of WPB for another year, contained one change from provisions of the previous act, that is to permit court reviews of suspension orders of WPB. District courts are given exclusive jurisdiction to enjoin or set aside suspension orders issued against a contractor for violations of allocation regulations.

## Extension of the OPA

The extension of the OPA will have a hearing by April, and, Oh my, such fireworks. It is a question if Bowles can stand the pressure. It may be terrific. Many farm congressmen are "red-headed" on the entire question of price control and rationing, as applied to farm products. You can bank on OPA law being extended, whether German war is over or not. After much spirited battling, there will be some changes, but price control and food rationing will be extended.

## Vegetable Acreage Goals

Vegetable acreage goals, calling for a 9 per cent spring and 5 per cent summer reduction, will be reviewed unless war developments warrant a more optimistic view in the next few weeks.

## New Parity Formula

The new Congress gives every indication of being farm-minded. Senator Elmer Thomas, Agriculture Committee Chairman, announced he would introduce a bill establishing a new parity formula. The new formula would change the present base of 1909-1914 to a modern 1919-1927 period, and would be so simple that "anyone could figure out quickly what his parity is for a commodity." (Maybe we should get Senator Thomas to "cook up" some scheme to simplify making out an Income Tax form.)

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## Co-ops and Fertilizer Manufacture

Of course it is the privilege of farmers to engage in the cooperative manufacture of fertilizers as much as it is the privilege of anyone else. Free enterprise, of which this country boasts, means the right of anybody to engage in the production of anything.

The Federal Government's real obligation is to promote free enterprise by seeing that competitors are accorded equal rights, that there be no monopoly or combination that would restrain trade, and that no individual or group of individuals is favored with exemptions or subsidies not available to all alike.

For a long time farmers have been asking to be placed on the same footing as industry, whatever that may mean. They have not asked for an advantage over industry. But in their cooperatives, farmers do have special privileges denied to privately owned enterprises, in that the cooperatives are not subject to the income tax. The assumption is that co-ops have no earned income to tax. Instead of net earnings, whatever savings are made are simply credited to the cost of fertilizer of its members.

Contrast this situation with that of another group of citizens who join in placing their capital to form a company for manufacturing fertilizers, just as business men in general do when starting a business. Money has been invested with the expectation that it will earn dividends.

Investors in private enterprises can get dividends from their investments only after the company has paid taxes on its earned income. Income taxes are high and fixed ceiling prices at which fertilizers can be sold are not correspondingly high. Therefore, the dividends left after taxes are paid are small. Stockholders, however, have the satisfaction of knowing what they might have made has gone via tax channels, to help win the war, a satisfaction that non-tax-paying co-ops can not share.

The point is that cooperatives enjoy the privilege of doing a tax-free business in manufacturing fertilizers, a privilege denied to privately owned enterprises. As a result, privately owned organizations are handicapped to that extent. Co-ops not only have rights equal to but superior to that of industry. They are, in fact, favored by the Government with a tax exemption which amounts to a subsidy.

Suppose that in some way all private-capital

enterprises could find a way to do business without paying taxes: how then would the Government get enough money for its support? In fact, is it not an anomalous situation to find that much of the promotion of cooperatives comes from Government agencies, from people receiving salaries from taxes, who are actually using tax money to promote ways of doing business without the payment of taxes?

The question is, what is the Government going to do to equalize opportunities as between cooperatives and private-capital organizations in establishing a fair free enterprise system?

### Campaign for Early Buying of Fertilizers

Agricultural Extension Services through their county agents are campaigning to get farmers to buy early for immediate shipments. In some instances farmers are being warned to buy their fertilizers for shipment before January 1st. Shortage of some materials, lack of sufficient labor and storage space at factories are assigned as reasons why farmers may not get their fertilizers if they wait till the usual time in placing orders.

From reports of fertilizer manufacturers, farmers are not doing well in ordering early this year as they did last year. Yet it is claimed that the need for the early movement of fertilizers to the farm is greater than ever. The Georgia Extension Service has been broadcasting over the radio telling farmers that, contrary to opinion prevailing in former years, fertilizers can be successfully stored on the farm and proceeded to give steps to be taken to keep the stored fertilizer in good condition.

Texas Agricultural Extension Service, in its news service to the state press, says in part:

"Ordering and accepting delivery of fertilizer for farm use before January first is most urgent. Not only that, but it is playing safe to place more of it in home storage than farmers did last year.

"There is a most pressing need for cooperation of farmers with manufacturers in moving available stocks of fertilizer. Shortages of labor and storage space at manufacturing plants coupled with delay in transportation may not permit delivery of a full season's supply after the first of the year.

"Early acceptance must continue as long as

consumption increases at the present rate if farmers are to get all they need. There is no other way out."

From Clemson College, S. C., the Extension Service has issued a press item from which the following is taken:

"Acceptance by farmers of approximately 4½ million tons of fertilizer by January 1, 1945 is necessary if dealers are to handle the tonnage expected to be used next season. Farmers seem reluctant to order and accept early deliveries of fertilizer this fall, in spite of repeated requests that have been made for their cooperation in this program.

"A factor more acute than ever before is that trucks and truck tires are wearing out and fertilizer deliveries are becoming increasingly uncertain. The best efforts of manufacturers, dealers, and farmers must be applied to the prompt delivery of fertilizer for 1945. Cooperation of all these groups concerned can handle the problem."

The Florida Agricultural News Service, reporting a meeting on Florida crop goals, reflected a fear that enough fertilizer materials would not be available in time for use on the citrus crop and asked the aid of Washington.

### Turnip Greens and Fertilizers

Varying iron contents of turnip greens grown in various parts of the South, led to a cooperative research project of a number of agricultural experiment stations, the results of which appear in *Southern Cooperative Series Bulletin 2*, available at southern stations.

Concerning the results, Clemson College Extension Service says in part:

"Turnip greens grown on soils rich in organic matter are high in iron. Turnip greens grown in the spring generally contain more iron than those grown in the fall. The iron content in turnip greens decreases with the application of nitrogen fertilizer, the specialists explain, although such applications increase the yield of the greens.

"In tests, greens grown at Clemson contained over four times as much iron as those grown at the Edisto Experiment Station. Those at the Clemson and Edisto Stations contained more iron when grown in the spring than in the fall; those at the Sandhill Station showed no significant difference with the season. Small turnip green plants at Clemson contained significantly more iron than large plants from the same plots."

### November Tag Sales

Fertilizer tax tag sales in November were by far the largest ever reported for any November. Since actual fertilizer consumption in the month is negligible, the large sales reflect the advance buying of tags, which in turn is due to the anticipated early buying of fertilizer by farmers for use in the spring season. Tag sales in November and December to a very great extent represent fertilizer consumption in 1945, not in 1944.

November sales in the 17 reporting States totaled 589,000 tons, compared with 463,000 tons a year ago and 250,000 tons two years ago. Increases over last year were reported by 11 States and decreases by six.

Sales in the first five months of the fiscal

year, July through November, amounted to 1,694,000 tons this year against 1,565,000 tons last year.

The effect on sales statistics of November-December buying of tags for use on fertilizer moving in the following year is illustrated by the record for Indiana. Fertilizer shipments in the State in the January-October period were many thousands of tons greater this year than last, but there was a 44,000 ton decline in tag sales. Tags were bought in November and December, 1943, for much of the tonnage shipped in early 1944. A substantial rise in tag sales took place in November, 1944, which will be reflected in 1945 shipments.

#### FERTILIZER TAX TAG SALES

STATE	NOVEMBER				JANUARY-NOVEMBER		
	1944 Tons	1943 Tons	1942 Tons	% 1943	1944 Tons	1943 Tons	1942 Tons
Virginia.....	25,479	13,350	10,175	106	475,125	448,081	405,713
North Carolina.....	106,068	77,631	29,687	96	1,226,372	1,272,496	1,136,447
South Carolina.....	52,900	58,680	27,180	87	710,693	816,903	667,144
Georgia.....	51,106	59,240	37,697	98	971,569	995,977	813,008
Florida.....	104,424	102,480	67,270	111	811,079	731,685	577,909
Alabama.....	32,000	54,250	1,050	89	620,350	698,050	565,250
Mississippi.....	50,310	29,831	29,588	86	387,874	453,045	334,207
Tennessee.....	12,699	7,219	100	115	260,070	226,485	173,286
Arkansas.....	11,000	8,960	5,050	70	121,583	174,665	138,208
Louisiana.....	8,150	9,900	7,950	109	211,445	193,268	163,666
Texas.....	22,910	8,250	5,320	117	191,953	163,400	124,604
Oklahoma.....	2,750	900	0	106	20,101	18,988	8,747
Total South.....	479,796	430,691	221,067	97	6,008,214	6,193,043	5,108,189
Indiana.....	90,707	12,290	25,864	109	430,150	396,080	421,891
Illinois.....	10,050	14,886	750	158	163,140	103,066	80,839
Kentucky.....	8,028	4,681	1,845	149	237,737	159,387	145,932
Missouri.....	85	156	25	151	135,086	89,717	70,822
Kansas.....	75	0	0	232	37,771	16,279	11,415
Total Midwest.....	108,945	32,013	28,484	131	1,003,884	764,529	730,899
Grand Total.....	588,741	462,704	249,551	101	7,012,098	6,957,572	5,839,088

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## FERTILIZER MATERIALS MARKET

### NEW YORK

**Some Stocks of Sulphate of Ammonia Accumulating. Prospects Favor Continuation of Nitrogen and Potash Allocations. Superphosphate Situation Tight Due to Shortage of Sulphuric Acid. Situation Not Expected to Improve.**

*Exclusive Correspondence to "The American Fertilizer"*

NEW YORK, December 12, 1944.

#### Nitrogen

Sulphate of ammonia has been moving fairly steadily against allocations but it is reported there has been a slight building up of stocks. Orders are being placed by many manufacturers subject to this material being removed from allocation. However, with the shortage of sulphuric acid the anticipated production of sulphate of ammonia may be affected. Nitrate of soda has been moving under allocation so there has been no loosening in the supply situation.

#### Superphosphate

This material continues tight and this situation is very apt to be aggravated as time goes on as there is no indication that demand for this material can be met, at this time.

#### Potash

Production has been maintained and although there was some delay in delivery due to car shortage, it is now reported shipments are again moving fairly smoothly. It had been anticipated potash would be removed from allocation but latest advices indicate that allocation of potash will be continued.

#### Phosphate Rock

Steady demand has continued and up to this time shipments of phosphate rock have not been affected by the probable reduction of superphosphate production. If production of superphosphate is affected as anticipated, it might make itself felt by reducing future deliveries of rock.

#### Sulphur

Production continues large with ample supplies.

### CHARLESTON

**Lack of Labor and Storage Space Hampers Early Distribution of Mixed Fertilizers. Nitrogen and Superphosphate Scarce.**

*Exclusive Correspondence to "The American Fertilizer"*

CHARLESTON, December 13, 1944.

Urgent efforts by newspaper and radio are being made to try to induce the farmers to order fertilizers early, but so far results have been very disappointing, due to labor shortage and limited storage. Unless goods are moved early, the fertilizer manufacturers may not be able to supply the demand later.

**Organics.**—These continue tight. Nothing in the way of nitrogenous is being offered. Prices in the Chicago market were as follows: Blood, \$5.53 per unit of ammonia (\$6.72 per unit N); hoof meal, \$4.25 to \$4.50 per unit of ammonia (\$5.16½ to \$5.47 per unit N); steamed bone meal, 3 and 50 per cent, \$35.00 to \$36.00 per ton, f. o. b. Chicago.

**Nitrogen Solutions.**—These continue exceedingly short. It is rumored that shipments may be cut off in January due to the increasing demand from the Ordnance Department. Regarding the general chemical nitrogen picture, it is now indicated that the quantity available for fertilizers during 1944-45 may be more than 100,000 tons of nitrogen less than the July estimate.

**Superphosphate.**—It is now indicated that the estimated output for the present season will be around 1,000,000 tons of 18 per cent superphosphate and 150,000 tons of triple superphosphate less than last season. Bids were recently asked by the Government for 1,500,000 tons for the AAA and only 190,000 tons were offered.

# Fertilizer Materials



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 DOUBLE SUPERPHOSPHATE  
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 BONE MEALS  
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 New Orleans, La.  
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 Norfolk, Va.  
 Presque Isle, Me.  
 San Juan, P. R.  
 Sandusky, Ohio

## CHICAGO

**Fertilizer Organic Materials in Tight Situation. Hope for Relief after New Year. Feed Market Spotty.**

CHICAGO, December 11, 1944.

An extremely tight supply situation governs the western organic market with offerings far below buyers' demand. It is hoped at least a small volume will be released after the turn of the year, as it is badly needed.

Demand for feed continues somewhat spotty. Such trading which has occurred has been under the ceiling, though offerings are not as liberal as previous.

Ceiling prices are:

High grade ground fertilizer tankage, \$3.85 to \$4.00 (\$4.68 to \$4.86 per unit N) and 10 cents; standard grades crushed feeding tankage, \$5.53 per unit ammonia (\$6.72 per unit N); blood, \$5.53 (\$6.72 per unit N); dry rendered tankage, \$1.25 per unit of protein, f. o. b. producing points.

## PHILADELPHIA

**Potash May Be Released from Allocation. Chemical Nitrogen Will Probably Continue Under Allotment. Organics Scarce.**

PHILADELPHIA, December 11, 1944.

There were no particularly unusual developments during the past couple of weeks. Some people still feel that potash will be released from the allocation regulations, while others have a hunch that sulphate of ammonia and nitrate of soda will also be released after the first of the year. This latter idea, however, seems to be but wishful thinking, as there does not seem to be any oversupply.

*Ammoniates.*—Organic materials still remained fairly scarce, sufficiently so to remain at ceiling levels.

*Sulphate of Ammonia.*—Supply keeps up with the allocated demand.

*Nitrate of Soda.*—Demand keeps the supply tight. December prices unchanged.

*Superphosphate.*—Production having difficulty keeping up with the demand.

*Bone Meals.*—While there seems to be no shortage, yet the demand is sufficiently good to keep prices firm.

*Potash.*—Demand is good, but producers have been able to keep pace.

*Castor Pomace.*—Little or none available, with most sales being made only to old customers.

## TENNESSEE PHOSPHATE

**New Mining Operations Started. Shipments to All Channels Limited by Manpower. AAA Asking for Phosphate Bids.**

COLUMBIA, TENN., December 11, 1944.

Tobacco sales begin on December 11th and run pretty steadily through the rest of the year, with usual prospects of extra Christmas money for this justly famed Burley District.

The Hoover & Mason Co. is busily engaged in reconstructing the old line of railroad track to their mines above Scott's Mill, using the labor of German war prisoners from the Lawrenceburg Camp for this purpose. The rapidly decreasing flow of material from the old Kittrell and Solita mines may now be supplemented, though it will doubtless be several years yet before these old mines are completely exhausted.

The International Minerals & Chemical Corporation is preparing to again start mining on the lands of the Frierson Estate, both in the old Magee mines southeast of their plant and in the fields near the Jonesboro area, both of which products will continue to be hauled by truck.

Shipments to all consuming lines continue at as high a rate as the manpower situation

Manufacturers'  
Sales Agents

for **DOMESTIC**

# Sulphate of Ammonia

Ammonia Liquor

::

Anhydrous Ammonia

**HYDROCARBON PRODUCTS CO., INC.**

500 Fifth Avenue, New York

permits and it is noted that up to December 1st, ground rock to farmers has been 30 per cent larger in volume of shipments than for the same period in 1943, with prospects that about same differential will obtain at the end of the year.

Invitations have gone out from AAA for bids on 250,000 tons of ground phosphate for use in Illinois, Indiana, Ohio and Kentucky. So far as known, there will be no bids from Tennessee producers, who all have orders through regular commercial channels for more than they can produce.

A paper was delivered at the meeting of the Nashville Section of the American Chemical Society on December 5th, by Dr. Copson of the TVA, on the fused or defluorinating phosphate plant now nearing completion on the L. & N. R. R. north of Columbia. No definite date for production is as yet announced, but it is supposed that same will be shortly after January 1st. It is not yet known whether the product will be the preliminary grade with 0.6 per cent fluorine, or whether the additional fusion will be carried out to reduce fluorine content below 0.2 per cent F. The ground rock in untreated state carries 3.5 per cent F.

### Price Stability Should Continue

"The stability of prices of most commodities," says the U. S. Department of Agriculture in its report on the outlook for business and agriculture in 1945, "which has been maintained during the last two years, will probably continue in 1945. Declines in the wholesale prices of farm products may be more than offset by increases in the prices of other products. Consequently, a slight rise in the index of wholesale prices of all commodities is possible.

"The greatest increase in prices for any of the groups of commodities making up the index has been for farm products. Wholesale prices of farm products averaged 88.5 per cent higher for the first nine months of 1944 than for the calendar year 1939, and 16.2 per cent higher than in 1942. However, for the six-month period April to September, 1944, they averaged about 1 per cent lower than in the corresponding period of 1943.

"The wholesale prices of farm products are likely to be moderately lower in 1945. Large current supplies have already caused a slight decline in recent months. The prospective decline in demand when fighting ends in Europe will cause further weakness in these prices. Prices of semi-manufactured and manufactured articles have risen very little in the last two years and the supply of many such articles for civilian use is insufficient to meet the demand at present prices. Government price controls will prevent price rises for most products, but such changes as are permitted under existing regulations are more likely to be increases than decreases."

### Feed Efficiency in Soil Treatments

Little or no attention has been given to chemical differences in the feeds caused by different agronomic changes that could profoundly affect the animals that consume them, say G. E. Smith and W. A. Albrecht of the Missouri Agricultural Experiment Station, in a paper published in the *Proceedings of the Soil Science of America*.

Illustrating the differences brought in feeds by soil treatment, the authors cite that on a soil low in lime and phosphorus, the addition of phosphorus increased the efficiency of forage when fed to lambs. When limestone was applied in addition



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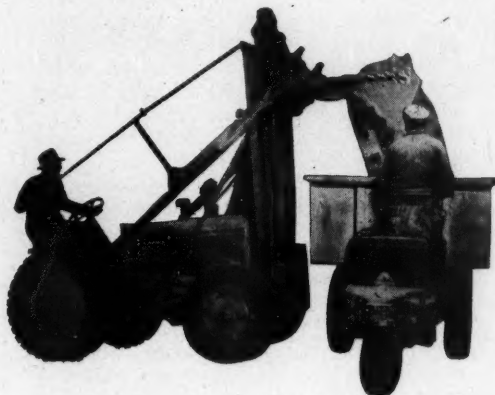


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to phosphorus, the nutritive value of the forage was further improved and the lambs made more gain from the grain on which they were fed and produced a higher quality of wool. This led the authors to say:

"It is significant that a simple treatment applied to the soil changed the composition of the plants, altered the physiology of the animals consuming the hay, and affected the appearance and quality of the wool."

Another illustration given by the authors is as follows:

"Timothy hay on soil with an excess of nitrogen, alfalfa with an excess of lime, or phosphorus, and soybeans on soil deficient in potash through excessive applications of lime have been lower in nutritive value than where no soil treatments were added. However, when these treatments were balanced by the addition of other plant nutrients, the quality of the feed was improved over that from the untreated soil. These results would indicate that tonnage yields are not a complete measure of the value of soil treatment and that maximum feeding value of forages can be obtained only when all soil nutrients are present in the proper ratios."

### Cotton—Wheat Export Plans Announced

Plans to facilitate exportation of cotton, wheat and wheat flour, announced by the War Food Administration, provide that these products will be made available by the Commodity Credit Corporation to exporters at competitive world prices.

The purpose, it is stated, is to make United States wheat, wheat flour and cotton available to foreign buyers on a price basis comparable to that at which other exporting countries are offering in world markets, and that the United States "has no intention of precipitating mutually injurious price competition in the world wheat and cotton market."

It is stated that all practical steps will be taken to encourage the exportation of

the grades of cotton and wheat of which the greatest surpluses exist and to protect domestic supplies of the kind of which there are relatively small amounts.

### Potassium Sulphate Conversion Project Delayed

The program for conversion of potassium chloride to potash sulphate in the Louisville, Ky., plant of the Rubber Reserve Company of the Reconstruction Finance Corporation, has been interrupted by a breakdown of the hydrochloric acid producing facilities, the War Production Board told the Potash Producers Industry Advisory Committee at a recent meeting. The program was initiated in November for the purpose of supplementing the supply of potash particularly in the tobacco producing areas, WPB said.

A short time after potassium chloride was substituted for sodium chloride in the production of hydrochloric acid, one of the furnaces failed, the committee was told. A representative of the War Production Board Office of Production Research and Development has been assigned to investigate the possibility of developing a basis for continuing the conversion program without interfering with production of hydrochloric acid for synthetic rubber. WPB officials said that until the investigation has been completed it will not be known whether the conversion can be resumed. In any event a delay of several weeks is anticipated, WPB said.

The principal purpose of the industry advisory committee meeting was to consider possible revision of the potash allocation order. As an aid to this consideration, a revised estimate of potash production based on recent reports from the potash producers was presented to the committee. This estimate, of approximately 860,000 tons of potash in 1944-45, was approximately 15,000 tons less than the previous estimate.

The estimated supply of potash available for domestic agriculture, including Hawaii and Puerto Rico, for April and May of 1945, is

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A shortage of the necessary cotton cloth is, of course, a bottleneck. So, to supplement our usual close cooperation with the cotton industry, we took an unusual step—

*An advertisement, appearing in the leading cotton textile newspaper, told the cotton merchants (1) about the amazing growth of the essential fertilizer industry, (2) the need for bags for fertilizer and (3) the types of cotton goods particularly needed.*

The whole object of this unusual undertaking is to create a closer cooperation between the cotton textile and the bag industries . . . to give you greater assurance of the supply of bags you need.

### BEMIS BRO. BAG CO.

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No. 10 of a Series

### An Open Letter to the Cotton Textile Industry:

☆ ☆ ☆

One of the largest, and fastest-growing  
uses for bags is shipping commercial  
fertilizer. The cotton manufacturers used  
in making these bags are generally  
36" x 24" and 40" x 24" Cuming.

A quick review of the growth of the  
business and the trend in its use of  
bags may be interesting.

In the 1920's, the annual consumption of commercial fertilizer in the United States ranged from 10 to 15 million tons. In 1932, when farm prices were depressed, it rose to about 4 million tons, after which it started a rather rapid climb. Last year the total was over 11 million tons. It will probably exceed that mark this year.

As for the importance of the fertilizer industry, consider this point: 30% of United States crop production last year was due to the use of fertilizer. Putting it another way—without the help of fertilizer, cultivation of an additional 30 million acres would have been necessary in order to produce the same volume of farm crops. And 30 million acres is nearly one and one-half times the area of the State of Iowa.

Now for a little bag history. Up to about 1914, fertilizer was packed principally in barrels. Cottons accounted for only about 15% and paper about 1%.

In the intervening years, barling held fairly steady in the total number of bags used, although it declined percentage-wise because of fertilizer production had gone up. Another factor—during part of 1942 and all of 1943, the use of barling bags for fertilizer was prohibited by the WPB.

Since 1934, cotton bags definitely have gained a preference. In 1943 more than three times as many were used as in 1941, accounting for about 25% of the total.

Here's an interesting observation from the cotton viewpoint. Last year, the first full year when barling was not permitted to be used for fertilizer, a choice between cotton and paper bags had to be made to replace the prohibited barling. Since deliveries of cotton bags increased over the previous year, much more than the amount of power, the preference must have been for cotton.

Barling is coming back into the picture in some extent as WPB now permits it to be used for fertilizer. If cotton goods can be provided in sufficient quantity to meet the continuously increasing demand for cotton bags, there is a good chance that the important volume of business can be retained after the war even when other types of bags are again freely available.



**Bemis Bro. Bag Co.**

Factory: San Francisco • . . . Branches: • Buffalo • Houston • Indianapolis • Kansas City • Memphis  
Minneapolis • New Orleans • Norfolk • Omaha • St. Louis • San Francisco • Seattle • Wichita

This is a greatly reduced reproduction of the advertisement to the cotton textile industry, telling how cotton goods are required for bags for fertilizer. Copy will be sent you on request.



East Pepperell, Mass.

approximately 70,000 tons, as compared with an earlier estimate of 91,000 tons, WPB reported. The total supply indicated for agriculture in 1944-45 is approximately 712,000 tons of potash. An earlier estimate had indicated that the requirement for 725,000 tons of potash represented by the War Food Administration would be met.

### Victory Gardens for 1945

The nation's Victory Gardeners were urged to get ready for next year's job by 125 Victory Garden leaders from all parts of the country at a recent conference at the Department of Agriculture.

A call for a Victory Garden program in 1945 to equal the record of 1944 was made. A summary of the conference recommendations follows:

1. Until the end of the war and of the transition emergency period food will continue to be a vital factor. All food that can be grown and consumed at home will help assure adequate supplies needed to maintain civilian health, efficiency and morale, after the requirements of the armed forces and other war needs are met.

2. Home planting of various types of fruit trees and small fruits where experience has shown they can be grown with a minimum of attention should be encouraged throughout the United States. The conference recommended that provision be made for larger research activities in this field by State and Federal experiment stations.

3. Encouragement should be given to planting of home grounds both in the city and the country to make homes more livable where this can be done without interference with needed food production. The conference also recommended more attention to space for home gardens in new real estate developments, and beautification of highway rights-of-way. It was recommended that greater emphasis be placed on research in ornamental horticulture by the U. S. Department of Agriculture, and that War Food Administration and the State Extension Services cooperate with urban communities in the employment of horticultural agents.

4. It was recommended that gardening in schools and among youth organizations be given added emphasis.

5. Gardening as a physical and mental healing force was emphasized and recommended as important in rehabilitation of disabled members of the armed forces.

6. It was recommended that State defense councils urge local Victory Garden committees to continue their work in 1945.

7. Industrial and commercial firms have contributed greatly to Victory Gardening through the fostering of employee gardens and are urged to continue this effort and to broaden it into a permanent post-war program.

### Research Makes Jobs

"Research has provided millions of jobs in the past and there is reason to believe it can do it again," said Dr. Cole Coolidge of E. I. duPont de Nemours and Co. recently in an address made in New York. Declaring that there "can be no victory in this war if its end brings widespread unemployment in the United States," he said: "Organized industrial research is the road to economic progress."

Dr. Coolidge pointed out that in 1900 the horse and buggy business gave work to about one million persons compared to the automobile industry's direct and indirect employment of more than 6,000,000 persons.

"Why does an American workman earn more in a day than his oriental counterpart earns in a month?" asked Dr. Coolidge, then answered: "The big reason is that he produces more. He produces more because of the research and the investment in tools and equipment that go to making of his job, because of the technology that stands behind him, because of the skill he has acquired."

"In the chemical field," Dr. Coolidge said, "the American workman is backed up by a research force that has become a new power in the world during the last two and a half decades—a research force that has destroyed forever the old myth of German technical supremacy."

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trial laboratories, many engaged in chemical research. From these laboratories have come thousands of new chemical compounds. The American chemical industry has outstripped that of any country in the world.

"In the post-war period, it remains for us to consolidate our gains, to continue our advance and to create a permanently fruitful economic structure. The means are at hand. Let me emphasize: It is science, it is investment in tools and equipment, and it is the American people together that can put these means to use."

### New Regulations on Textile Bags

The War Production Board's order M-221 has been amended respecting textile bags, forbidding the use of new textile bags for packing fish meal, fish scrap, tankage and meat scrap. The order, however, relaxes some of the restrictions on second-hand textile bags. Second-hand sugar bags, previously limited to sugar, can now be used as containers of any products. Burlap bags which formerly could not be changed in size, can now be altered to suit the customers' requirements.

Certificates of familiarity with order M-221 is no longer required of second-hand purchasers.

### Returns from Fertilizers and Lime, 300 Per Cent

Just to prove that lime and fertilizers are good investments, Dr. S. S. Obenshain, soil specialist of the Virginia Agricultural Experiment Station, points out that returns can be about 300 per cent. A study at the Chatham Experiment Station on a rotation of corn, wheat and hay showed three times the yield in contrast to the use of no lime and 16 per cent superphosphate.

Three hundred per cent on an investment is worth thinking about.

### Postwar Agriculture Not Be Dream World

Much that has been said about postwar planning is unrealistic, wishful thinking, which is harmful only if it lulls us into thinking that the new dream world will automatically come into being with the end of the war, Director D. W. Watkins of the Clemson College says.

"People will still work for an income and will buy what they can with it in the way of an improved living standard. No great difference will be observable at once," Mr. Watkins declared. "In fact, most American farm people, remembering their history, expect some recession in prices soon after the war. But while we cannot predict with assurance, it is somewhat satisfying to recall in these confused times that we do know more than ever about the operation of natural laws.

"While we are glad to realize that the laws of nature are fixed and we are curious to discover them and apply them to efficient farm production, it is not in this field that lie our fears for the future. It is rather in the man-made part of the future that farmers find cause for anxiety—the so-called economic and political aspects of farming.

"We fear inflation and rightly so. Perhaps that fear will forestall the assumption of debts that require a long time for payment. It should do so. Perhaps this time, farmers will be able to avoid the disastrous debt that engulfed so many at the end of previous wars."

### Not the Time To Buy Farmlands

Dr. H. N. Young, head of the Department of Agricultural Economics of Virginia Polytechnic Institute, is quoted as saying: "This is not the time for a young man to buy a farm, nor will the service man from the war find the price of farm land in his favor. It will probably be advisable for the returning veteran to rent for a few years instead of buying."

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See Page 4



## The Post-War Competition Situation for Cotton

In a report released by its Interbureau Committee on Post-War Programs, the U. S. Department of Agriculture outlines the post-war competitive situation for cotton in domestic markets. It is pointed out that the partial or complete displacement of natural fibers by synthetic fibers for certain uses may result from the wartime expansion of production facilities for synthetics.

"On the other hand," the report continues, "new expanded markets for the natural fibers may be provided in connection with new products and processes that are now in process of development."

In its appraisal of the prospective competition to be met by cotton in markets in post-war years the Interbureau Committee bases its analysis upon these three factors: (1) trends in the consumption of principal fibers preceding and during the war; (2) recent developments in connection with some of the principal specific uses for cotton; and (3) probable post-war developments.

To indicate the importance of cotton in supplying the United States' need for textile fibers, data are given which show that during the pre-war period from 1935-39, cotton consumption averaged 3,409,000,000 pounds.

"With the coming of the war, consumption increased to record levels," the report says. "The peak was reached in 1941 at 5,470,000,000 pounds (11.2 million bales). During the war years of increased fiber consumption, cotton has held its place and has comprised about 73 per cent of all fibers used."

The report contains significant data on the demand for cotton as influenced by competition from such synthetic fibers as paper, jute, and other wrapping materials, and most important of all, rayon. It says: "Consumption of rayon has continued its long-time upward trend with the total of 656,000,000 pounds for 1943, the highest on record. The increase in the consumption of rayon in the United States during the last ten years has been more than fourfold. World consump-

tion has shown more than a sevenfold increase in the same period."

At least partially responsible for the increased use of rayon is the fact that the price has been reduced so greatly in recent years. Prices of rayon staple fiber declined from 60 cents per pound in 1928 to 25 cents per pound at present (net weight). This makes it directly competitive in price with cotton, since there is less waste in using rayon and no premium for staple lengths.

Important among the prospective uses for which there will likely be an increased demand for cotton after the war the report discusses possibilities for insulation, plastics, special clothing fabrics, and cotton as a raw material for synthetic fibers.

With respect to cotton insulation the committee says: "For a long time, cotton has been known to possess insulating qualities, but its high inflammability has limited its use for this purpose. Recently, methods of flame-proofing have been adapted to cotton insulation, which has been made water repellent. The insulating industry has now found cotton insulation to be suitable not only for use in homes and other types of buildings, but also for refrigerator cars, trucks, and other uses where insulation against heat, cold, or sound is required."

"Plastics," the committee points out, "is one of the most promising of the new industries that have had an accelerated expansion because of the war. At present, cotton fabrics are being used extensively as filler or reinforcement in the manufacture of those plastics which require relatively high tensile strength, light weight, toughness, flexibility, and moldability. This is particularly true with respect to the laminated plastics."

In order to maintain the market for cotton in uses threatened by competition from other materials, these recommendations are made:

1. In the development of programs designed to maintain incomes of cotton producers, due consideration should be given to the practical effects of such programs upon market prices for cotton as affecting the competitive position of the commodity.
2. Intensify efforts to improve the physical

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and chemical properties of cotton products for specific uses.

3. Expand the program of standardized production of improved varieties of cotton on a single variety area basis; also establish an adequate system for safeguarding the identity of individual bales of cotton by variety thereby making possible the procurement by manufacturers of cotton of specific varieties most suitable for specific uses and the reduction in marketing costs that would follow elimination of duplication of sampling and classification services.
4. Intensify efforts to reduce costs of producing, ginning, processing, marketing, and handling cotton and cotton goods as a means of improving its competitive position from the standpoint of price without affecting adversely the net incomes of cotton growers.
5. Take appropriate steps to encourage the initial adaptation of cotton to new and promising fields of uses.
6. Keep the public informed, by appropriate means, of the advantages and adaptability of cotton.

### War's Drain on Land

How fares the land—the soil itself—in wartime? This is one of the questions considered in the recent report by a group of Bureau of Agricultural Economics specialists. Throughout the war, they say the supply of fertilizer has been reasonably adequate. From 1940 to 1943 the number of acres planted to crops expanded about 4 per cent; fertilizer consumption increased approximately 36 per cent. Despite this, it is improbable that the heavy wartime drain on soil fertility has been completely offset. To maintain and restore the fertility of farm land, better cultural methods, more physical improvements like terracing and draining, and larger quantities of fertilizer are needed.—*Georgia Agricultural Extension Service.*

### Cattle Sought Fertilized Pasture

T. E. Harvey, Smith County, Texas, put one ton of lime and 500 pounds of 20 per cent superphosphate on five acres of pasture land. This land was seeded to Dallis grass, White Dutch, Persian and Hop clover. Two outstanding results were noticeable in September: The clovers were three to four inches high, whereas in the adjoining pasture which had not received superphosphate, the clover

could hardly be seen; and of 48 cattle which were turned in the pasture, all but two went straight to the plot that had been fertilized for grazing. Mr. Harvey spent \$25 per acre on this plot, but he believes the money was well spent, according to County Agricultural Agent M. B. Hill.—*Texas Agricultural Extension Service.*

### FERTILIZING FOR YIELD AND SOIL IMPROVEMENT

(Continued from page 8)

crops. Rates of use of fertilizer increase as growers gain experience and confidence in their use. The beginner not infrequently reports no returns or sometimes damage from the use of fertilizer because he fails to realize the importance of proper placement, or because too little has been used to produce an appreciable increase in yield.

For completely satisfactory use of fertilizer in western Oregon, summer irrigation is necessary. Irrigation like the use of fertilizer is extended to more acres as the users gain experience. Water and fertility are a team; a serious shortage of either may render the other of little avail, particularly for those crops grown in midsummer season when the weather is hot and transpiration is high. The very early crops grown while the soil is moist from winter rains may respond satisfactorily to fertilizer without supplemental irrigation.

Another stimulus to the use of fertilizer in western Oregon is the ever-increasing indication of fertility depletion. Where wheat, hops, grass, or some other crop has been removed from the land for half a century or more with little return of fertility, production is likely to show a decline. Then the owners become interested in crop rotation, liming for legumes, and the use of fertilizers for bigger yields and soil improvement.

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# BUYERS' GUIDE •

A CLASSIFIED INDEX TO ALL THE ADVERTISERS IN "THE AMERICAN FERTILIZER"



This list contains representative concerns in the Commercial Fertilizer Industry, including fertilizer manufacturers, machinery and equipment manufacturers, dealers in and manufacturers of commercial fertilizer materials and supplies, brokers, chemists, etc. For Alphabetical List of Advertisers, see page 33.



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Barrett Division, The Allied Chemical & Dye Corp., New York City.

DuPont de Nemours & Co., E. I., Wilmington, Del.

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For an Alphabetical List of all the  
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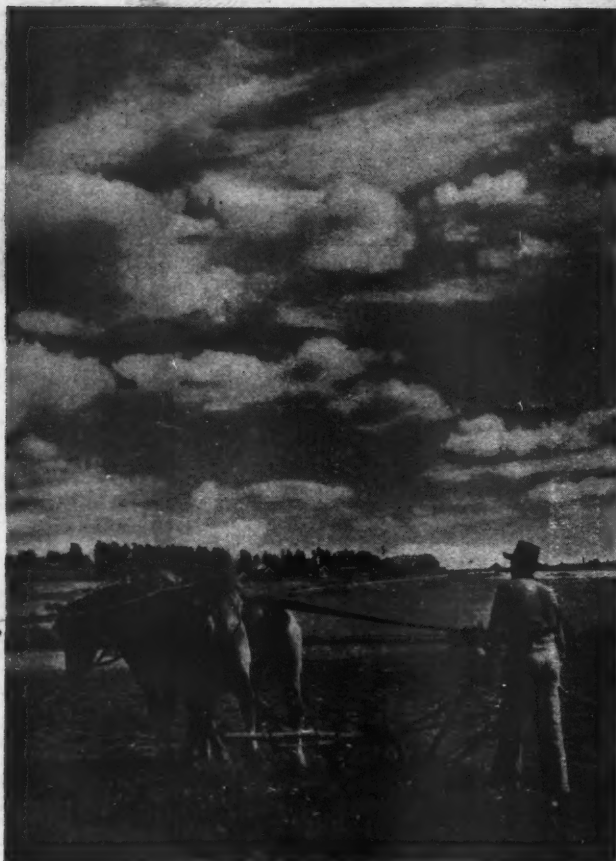
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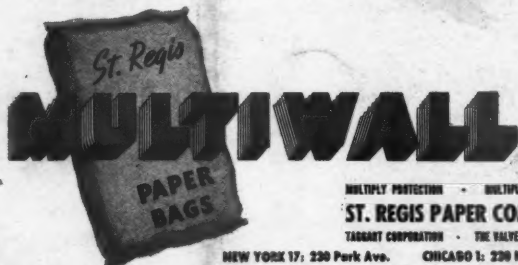


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